APPENDIX A: FINAL RULES

Parts 2, 87 and 95 of title 47 of the Code of Federal Regulations are amended as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for part 2 continues to read as follows

AUTHORITY 47 U S C 154, 302a, 303, and 336, unless otherwise noted

2 Section 2 106, the Table of Frequency Allocations, is amended as follows:

a Revise pages 26 and 44

b In the list of International Footnotes under heading I., add footnotes 5.197A and 5.328B.

c In the list of United States (US) Footnotes, revise footnote US31 and add footnote US343.

§ 2.106 Table of Frequency Allocations.

The revisions and additions read as follows

* * * * *

	75 4-76 FIXED MOBILE	75 4-87 FIXED MOBILE 5 182 5 183 5 188	75 4-88	75 4-76 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
5 175 5 179 5 184 5 187	76-88 BROADCASTING Fixed Mobile 5 185	87-100 FIXED MOBILE BROADCASTING		76-88 BROADCASTING NG128 NG129 NG149	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
87 5-100 BROADCASTING 5 190	88-100 BROADCASTING		88-108	88-108 BROADCASTING	Broadcast Radio (FM) (73) Auxiliary Broadcasting (74)
100-108 BROADCASTING 5 192 5 194			US93	US93 NG2 NG128 NG129	
108-117 975 AERONAUTICAL RADIONAVIGATION 5 197 5 197A			108-117 975 AERONAUTICAL RADIONAVIGATION US93 US343		Aviation (87)
117 975-137 AERONAUTICAL MOBILE (R)			117 975-121 9375 AERONAUTICAL MOBILE (R) 5 111 5 198 5 199 5 200 US26 US28		
			121 9375-123 0875 5 198 US30 US31 US33 US80 US102 US213	121 9375-123 0875 AERONAUTICAL MOBILE 5 198 US30 US31 US33 US80 US102 US213	
			123 0875-123.5875 AERONAUTICAL MOBILE 5 198 5 200 US32 US33 US112		
5 111 5 198 5 199 5 200 5 201 5 202 5 203 5 203A 5 203B			See next page for 123 5875-137 MHz		See next page for 123 5875-137 MHz

1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5 351A Earth exploration-satellite Mobile except aeronautical mobile 5 349 5 341 5 342 5 350 5 351 5 352A 5 354	1525-1530 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5 351A Earth exploration-satellite Fixed Mobile 5 343 5 341 5 351 5 354	1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5 351A Earth exploration-satellite Mobile 5 349 5 341 5 351 5 352A 5 354	1525-1535 MOBILE-SATELLITE (space-to-Earth) US315 US380 5 341 5 351	Satellite Communications (25) Maritime (80)
1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5 351A 5 353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5 341 5 342 5 351 5 354	1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5 351A 5 353A Earth exploration-satellite Fixed Mobile 5 343 5 341 5 351 5 354			
1535-1559 MOBILE-SATELLITE (space-to-Earth) 5 351A 5 341 5 351 5 353A 5 354 5 355 5 356 5 357 5 357A 5 359 5 362A			1535-1559 MOBILE-SATELLITE (space-to-Earth) US308 US309 US315 US380 5 341 5 351 5 356	Satellite Communications (25) Maritime (80) Aviation (87)
1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5 328B 5 329A 5 341 5 362B 5 362C 5 363			1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5 341 US208 US260 US343	Aviation (87)

* * * * *

INTERNATIONAL FOOTNOTES

* * * * *

5 197A The band 108-117 975 MHz may also be used by the aeronautical mobile (R) service on a primary basis, limited to systems that transmit navigational information in support of air navigation and surveillance functions in accordance with recognized international aviation standards Such use shall be in accordance with Resolution 413 (WRC–03) and shall not cause harmful interference to nor claim protection from stations operating in the aeronautical radionavigation service which operate in accordance with international aeronautical standards.

* * * * *

5 328B The use of the bands 1164-1300 MHz, 1559-1610 MHz and 5010-5030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. 9.12, 9 12A and 9.13 Resolution 610 (WRC–03) shall also apply.

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UNITED STATES (US) FOOTNOTES

* * * * *

US31 The frequencies 122.700, 122 725, 122.750, 122 800, 122.950, 122.975, 123.000, 123.050 and 123 075 MHz may be assigned to aeronautical advisory stations. In addition, at landing areas having a part-time or no airdrome control tower or FAA flight service station, these frequencies may be assigned on a secondary non-interference basis to aeronautical utility mobile stations, and may be used by FAA ground vehicles for safety related communications during inspections conducted at such landing areas.

The frequencies 122.850, 122.900 and 122.925 MHz may be assigned to aeronautical multicom stations In addition, 122.850 MHz may be assigned on a secondary noninterference basis to aeronautical utility mobile stations In case of 122.925 MHz, US213 applies.

Air carrier aircraft stations may use 122 000 and 122 050 MHz for communication with aeronautical stations of the Federal Aviation Administration and 122.700, 122.800, 122.900 and 123.000 MHz for communications with aeronautical stations pertaining to safety of flight with and in the vicinity of landing areas not served by a control tower.

Frequencies in the band 121.9375-122 6875 MHz may be used by aeronautical stations of the Federal Aviation Administration for communication with aircraft stations.

* * * * *

US343 Differential-Global-Positioning-System (DGPS) Stations, limited to ground-based transmitters, may be authorized on a primary basis in the bands 108-117.975 and 1559-1610 MHz for the specific purpose of transmitting DGPS information intended for aircraft navigation. Such use shall be in accordance with ITU Resolution 413 (WRC-03)

PART 87—AVIATION SERVICES

1 The authority citation for Part 87 continues to read as follows:

AUTHORITY: 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e) unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-156, 301-609.

2 Section 87.5 is amended by removing the entry and definition for Civil Air Patrol Station and by adding, at the appropriate positions in alphabetical order, entries and definitions for Automatic Terminal Information Service-Broadcast (ATIS-B), Differential GPS (DGPS), and Flight Information Service-Broadcast (FIS-B), to read as follows

§ 87.5 Definitions.

* * * * *

Airport control tower *(control tower) station* An aeronautical station providing communication between a control tower and aircraft

Automatic terminal information service-broadcast (ATIS-B). The automatic provision of current, routine information to arriving and departing aircraft throughout a 24-hour period or a specified portion thereof.

Automatic weather observation station (AWOS) or automatic surface observation station (ASOS). A land station located at an airport and used to automatically transmit weather information to aircraft

* * * * *

Aviation support station An aeronautical station used to coordinate aviation services with aircraft and to communicate with aircraft engaged in unique or specialized activities. (See Subpart K.)

Differential GPS (DGPS). A system which transmits corrections to the GPS derived position

Emergency locator transmitter (ELT) test station A land station used for testing ELTs or for training in the use of ELTs

* * * * *

Expendable launch vehicle (ELV) A booster rocket that can be used only once to launch a payload, such as a missile or space vehicle.

Flight Information Service-Broadcast (FIS-B). A broadcast service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Flight test aircraft station An aircraft station used in the testing of aircraft or their major components

* * * * *

3 Section 87.25 is amended by removing paragraph (f).

4 Section 87 27 is amended by removing paragraph (b), redesignating paragraph (c) as (b), and revising paragraph (a) to read as follows:

§ 87.27 License term.

(a) Licenses for stations in the aviation services will normally be issued for a term of ten years from the date of original issuance, or *renewal*

* * * * *

5 Section 87 45 is amended to read as follows·

§ 87.45 Time in which station is placed in operation.

This section applies only to unicom stations and radionavigation land stations, excluding radionavigation land test stations When a new license has been issued or additional operating frequencies have been authorized, the station *or* frequencies must be placed in operation no later than one year from the date of the grant The licensee must notify the Commission in accordance with § 1.946 of this chapter that the station or frequencies have been placed in operation.

6. Section 87 109 is amended to read as follows

§ 87.109 Station Logs.

(a) A station at a fixed location in the international aeronautical mobile service must maintain a log in accordance with Annex 10 of the ICAO Convention

(b) A station log must contain the following information:

(1) The name of the agency operating the station

(2) The identification of the station.

(3) The date.

(4) The time of opening and closing the station

(5) The frequencies being guarded and the type of watch (continuous or scheduled) being maintained on each frequency

(6) Except at intermediate mechanical relay stations where the provisions of this paragraph need not be complied with, a record of each communication showing text of communication, time communications completed, station(s) communicated with, and frequency used.

(7) All distress communications and action thereon.

(8) A brief description of communications conditions and difficulties, including harmful interference. Such entries should include, whenever practicable, the time at which interference was experienced, the character, radio frequency and identification of the interfering signal.

(9) A brief description of interruption to communications due to equipment failure or other troubles, giving the duration of the interruption and action taken

(10) Such additional information as may be considered by the operator to be of value as part of the record of the stations operations

(c) Stations maintaining written logs must also enter the signature of each operator, with the time the operator assumes and relinquishes a watch.

7 Section 87.111 is amended to read as follows:

§ 87.111 Suspension or discontinuance of operation.

The licensee of any airport control tower station or radionavigation land station must notify the nearest FAA regional office upon the temporary suspension or permanent discontinuance of the station. The FAA regional office must be notified again *when* service resumes

8 Section 87 131 is amended by revising the table and footnote 8 to read as follows

§ 87.131 Power and emissions.

* * *

Class of station	Frequency band/frequency	Authorized emission(s)[9]	Maximum power[1]
* * *	* * *	* * *	* * *
Aeronautical enroute and aeronautical fixed	HF. . .	R3E, H3E, J3E, J7B, H2B, J2D	6 kW.
	VHF . . .	A3E, A9Wm G1D, A2D	
* * *	* * *	* * *	* * *
Aircraft (Communication) .	UHF. ...	F2D. F9D, F7D	25 watts
	VHF . .	A3E, A9W. G1D. G7D. A2D	55 watts
	HF..	R3E, H3E, J3E, J7B, H2B. J7D, J9W	400 watts.
	HF . . .	A1A, F1B, J2A. J2B	100 watts.
* * *	* * *	* * *	* * *
Aircraft earth . . .	UHF ...	G1D, G1E. G1W	60 watts [8]
* * * * *	* * * * *	* * * * *	* * *

[1] The power is measured at the transmitter output terminals and the type of power is determined according to the emission designator as follows

(i) Mean power (pY) for amplitude modulated emissions and transmitting both sidebands using unmodulated full carrier

(ii) Peak envelope power (pX) for all emission designators other than those referred to in paragraph (i) of this note

* * *

[8] Power may not exceed 60 watts per carrier, as measured at the input of the antenna subsystem, including any installed diplexer The maximum EIRP may not exceed 2000 watts per carrier

[9] Excludes automatic link establishment

* * *

9 Section 87.133 is amended by revising paragraph (c) to read as follows.

§ 87.133 Frequency stability.

* * * * *

(c) For single-sideband transmitters, the tolerance is:

(1) All aeronautical stations on land . . . . . 10 Hz

(2) All aircraft stations . . . . . .20 Hz

* * * * *

10 Section 87.137 is revised by amending the table in paragraph (a) to read as follows:

§ 87.137 Types of emission.

(a)* * *

Class of emission	Emission designator	Authorized bandwidth (kilohertz)		
		Below 50 MHz	Above 50 MHz	Frequency deviation
* * *	* * *	* * *	* * *	* * *
A3E[2]	6K00A3E		[3]50 (17)	
A3E	5K6A3E		8 33kHz	
* * *	* * *	* * *	* * *	* * *
F9D	5M0F9D		(9)	
G1D	16K0G1D		20kHz	
* * *	* * *	* * *	* * *	* * *
G1E[16]	21K0G1E		25	
G1W[16]	21K0G1W		25	
* * * * *	* * * * *	* * * * *	* * * * *	* * * * *

* * *

[2] For use with an authorized bandwidth of 8 0 kilohertz at radiobeacon stations. A3E will not be authorized:

(i) At existing radiobeacon stations that are not authorized to use A3 and at new radiobeacon stations unless specifically recommended by the FAA for safety purposes

(ii) At existing radiobeacon stations currently authorized to use A3, subsequent to January 1, 1990, unless specifically recommended by the FAA for safety purposes

[7] In the band 117.975-136 MHz, the authorized bandwidth is 25 kHz for transmitters approved after January 1, 1974

* * *

[9] To be specified on license

* * *

[16] Authorized for use by aircraft earth stations. Lower values of necessary and authorized bandwidth are permitted.

[17] In the band 117.975-137 MHz, the Commission will not authorize any 8.33 kHz channel spaced transmissions or the use of their associated emission designator within the U.S. National Airspace System, except by avionics equipment manufacturers, and Flight Test Stations, which are required to perform installation and checkout of such radio systems prior to delivery to their customers for use outside U.S. controlled airspace. For transmitters certificated to tune to 8.33 kHz channel spacing as well as 25 kHz channel spacing, the authorized bandwidth is 8.33 kHz when tuned to an 8.33 kHz channel.

* * * * *

11. Section 87.139 is amended by removing paragraph (i)(2), redesignating paragraphs (i)(3) and (i)(4) as paragraphs (i)(2) and (i)(3), and revising paragraphs (h)(2), (i)(1), and (i)(3) to read as follows:

§ 87.139 Emission limitations.

* * * * *

(h) * * * * *

(2) When the frequency is removed from the assigned frequency by more than 100 percent of the authorized bandwidth the attenuation must be at least 30 dB.

(i) * * * * *

(1) At rated output power, while transmitting a modulated single carrier, the composite spurious and noise output shall be attenuated by at least:

Frequency (MHz)	Attenuation (dB)[1]
0.01 to 1525	-135 dB/4 kHz
1525 to 1559	-203 dB/4 kHz
1559 to 1585	-155 dB/MHz
1585 to 1605	-143 dB/MHz
1605 to 1610	-117 dB/MHz
1610 to 1610.6	-95 dB/MHz
1610.6 to 1613.8	-80 dBW/MHz[3]
1613.8 to 1614	-95 dB/MHz
1614 to 1626.5	-70 dB/4 kHz
1626.5 to 1660	-70 dB/4 kHz[2, 3, 4]
1660 to 1670	-49.5 dBW/20 kHz[2, 3, 4]

1670 to 1735	-60 dB/4 kHz
1735 to 12000	-105 dB/4 kHz
12000 to 18000	-70 dB/4 kHz

[1] These values are expressed in dB referenced to the carrier for the bandwidth indicated, and relative to the maximum emission envelope level, except where the attenuation is shown in dBW, the attenuation is expressed in terms of absolute power referenced to the bandwidth indicated

[2] Attenuation measured within the transmit band excludes the band ± 35 kHz of the carrier frequency

[3] This level is not applicable for intermodulation products

[4] The upper limit for the excess power for any narrow-band spurious emission (excluding intermodulation products within a 30 kHz measurement bandwidth) shall be 10 dB above the power limit in this table

* * * * *

(3) * * *

Frequency Offset (normalized to SR)	Attenuation (dB)
+/-0.75 x SR	0
+/-1 40 x SR	20
+/-2 95 x SR	40

Where SR = Symbol Rate
SR = 1 x channel rate for BPSK
SR= 0.5 x channel rate for QPSK

* * * * *

12 Section 87.145 is amended by removing paragraph (c)(1) and redesignating paragraphs (c)(2) through (c)(5) as paragraphs (c)(1) through (c)(4)

13 Section 87 147 is amended by adding paragraph (f) and revising paragraphs (d), (d)(1), and (e) to read as follows

§ 87.147 Authorization of equipment.

* * * * *

(d) An applicant for certification of equipment intended for transmission in any of the frequency bands listed in paragraph (d)(3) of this section must notify the FAA of the filing of a certification application The letter of notification must be mailed to FAA, Office of Spectrum Policy and Management, ASR-1, 800 Independence Ave., S W , Washington, D.C. 20591 prior to the filing of the application with the Commission.

* * * * *

(2) The certification application must include a copy of the notification letter to the FAA. The Commission will not act until it receives the FAA's determination regarding whether it objects to the application for equipment authorization The FAA should mail its determination to Office of Engineering and Technology Laboratory, Authorization and Evaluation Division, 7435 Oakland Mills Rd , Columbia, MD 21046 The Commission will consider the FAA determination before taking final action on the application

(3) The frequency bands are as follows.

90-110 kHz
190-285 kHz
325-435 kHz
74 800 MHz to 75.200 MHz
108 000 MHz to 137 000 MHz
328 600 MHz to 335 400 MHz
960 000 MHz to 1215.000 MHz
1545 000 MHz to 1626 500 MHz
1646.500 MHz to 1660.500 MHz
5000 000 MHz to 5250 000 MHz
14 000 GHz to 14.400 GHz
15 400 GHz to 15 700 GHz
24 250 GHz to 25 250 GHz
31 800 GHz to 33.400 GHz

(e) Verification reports for ELTs capable of operating on the frequency 406.0-406.1 MHz must include sufficient documentation to show that the ELT meets the requirements of Section 87.199(a) of this Part A letter notifying the FAA of the ELT verification must be mailed to: FAA, Office of Spectrum Policy and Management, ASR-1, 800 Independence Avenue SW., Washington, DC 20591

(f) Certification may be requested for equipment that has the capability to transmit in the 138-144 MHz, 148-149.9 MHz, or 150 5-150 8 MHz bands as well as frequency bands set forth in Section 87 173 of this part. The Commission will only certify this equipment for use in the bands regulated by this part.

14 Section 87.151 is added to read as follows:

§ 87.151 Special requirements for differential GPS receivers.

(a) The receiver shall achieve a message failure rate less than or equal to one failed message per 1000 full-length (222 bytes) application data messages, while operating over a range from -87 dBm to -1 dBm, provided that the variation in the average received signal power between successive bursts in a given time slot shall not exceed 40 dB. Failed messages include those lost by the VHF data receiver system or which do not pass the cyclic redundancy check (CRC) after application of the forward error correction (FEC).

(b) The aircraft receiving antenna can be horizontally or vertically polarized Due to the difference in the signal strength of horizontally and vertically polarized components of the broadcast signal, the total aircraft implementation loss is limited to 15 dB for horizontally polarized receiving antennas and 11 dB for vertically polarized receiving antennas

(c) Desensitization The receiver shall meet the requirements specified in paragraph (a) of this section in the presence of VHF-FM broadcast signals in accord with following tables.

(1) Maximum levels of undesired signals.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
50 kHz up to 88 MHz	-13
88 MHz – 107.900 MHz	[see paragraph (c)(2)]
108.000 MHz – 117 975 MHz	excluded
118 MHz	-44
118 025 MHz	-41
118.050 MHz up to 1660 5 MHz	-13

(2) Desensitization frequency and power requirements for the frequencies 108.025 MHz to 111 975 MHz

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
88 MHz $\leq$ f $\leq$ 102 MHz	15
104 MHz	10
106 MHz	5
107 9 MHz	-10

(3) Desensitization frequency and power requirements for the frequencies 112 00 MHz to 117.975 MHz

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
88 MHz $\leq$ f $\leq$ 104 MHz	15
106 MHz	10
107 MHz	5
107.9 MHz	0

1 The relationship is linear between single adjacent points designated by the above frequencies

(d) Intermodulation Immunity The receiver shall meet the requirements specified in paragraph (a) above in the presence of interference from two-signal, third order intermodulation products of two VHF-FM broadcast signals having levels in accordance with the following:

(1) $2N_1 + N_2 + 72 \leq 0$ for VHF-FM sound broadcasting signals in the range 107.7–108 MHz; and

(2) $2N_1 + N_2 + 3(24 - 20\log \text{delta } f/0.4) \leq 0$ for VHF-FM sound broadcasting signals below 107 7 MHz, where the frequencies of the two VHF-FM sound broadcasting signals produce, within the receiver, a two signal, third-order intermodulation product on the desired VDB frequency.

(3) In the formulas in paragraphs (d)(1) and (d)(2) above, N_1 and N_2 are the levels (dBm) of the two VHF FM sound broadcasting signals at the VHF data broadcast (VDB) receiver input. Neither level shall exceed the desensitization criteria set forth in paragraph (c). Delta $f = 108.1 - f_1$, where f_1 is the frequency of N_1, the VHF FM sound broadcasting signal closer to 108.1 MHz

15 Section 87 169 is amended to read as follows:

§ 87.169 Scope.

This subpart contains class of station symbols and a frequency table which lists assignable frequencies. Frequencies in the Aviation Services will transmit communications for the safe, expeditious, and economic operation of aircraft and the protection of life and property in the air Each class of land station may communicate in accordance with the particular sections of this part which govern these classes Land stations in the Aviation Services in Alaska may transmit messages concerning sickness, death, weather, ice conditions or other matters relating to safety of life and property if there is no other established means of communications between the points in question and no charge is made for the communications service.

16 Section 87.171 is amended by adding, in alphabetical order, the symbols and class of station for GCO, RCO, RLD, RNV, and RPC, and by removing the symbol and class of station for FAP to read as follows

§ 87.171 Class of station symbols.

* * *

FAM – Aeronautical multicom

FAR – Aeronautical search and rescue

* * *

FAW – Automatic weather observation

GCO – Ground Communication Outlet

MA – Aircraft (Air carrier and Private)

* * *

MRT – ELT test

RCO – Remote Communications Outlet

RL – Radionavigation land (unspecified)

* * *

RLB – Radiobeacon

RLD – RADAR/TEST

RLG – Glide path

* * *

RLW – Microwave landing system

RNV – Radio Navigation Land/DME

RPC – Ramp Control

TJ – Aircraft earth station in the Aeronautical Mobile-Satellite Service

17 Section 87.173 is amended by revising the table in paragraph (b) to read as follows:

§ 87.173 Frequencies.

* * * * *

(b) Frequency table

Frequency or frequency band	Subpart	Class of station	Remarks
90-110 kHz	Q	RL	LORAN "C"
190-285 kHz	Q	RLB	Radiobeacons
200-285 kHz	O	FAC	Air traffic control.
325-405 kHz	Q	RLB	Radiobeacons
410 0 kHz	F	MA	International direction-finding for use outside of United States
457 0 kHz	F	MA	Working frequency for aircraft on over-water flights
500 0 kHz	F	MA	International calling and distress frequency for ships and aircraft on over-water flights.
510-535 kHz	Q	RLB	Radiobeacons
2182.0 kHz	F	MA	International distress and calling
2371.0 kHz			[Reserved]
2374 0 kHz			[Reserved]
2648 0 kHz	I	AX	Alaska station
2851 0 kHz	I, J	MA, FAE, FAT	International HF (AFI); Flight test
2854.0 kHz	I	MA, FAE	International HF (SAT).
2866 0 kHz	I	MA, FAE	Domestic HF (Alaska).
2869 0 kHz	I	MA, FAE	International HF (CEP).
2872 0 kHz	I	MA, FAE	International HF (NAT).
2875 0 kHz	I	MA, FAE	Domestic HF
2878.0 kHz	I	MA1, FAE	Domestic HF, International HF (AFI).
2887 0 kHz	I	MA, FAE	International HF (CAR)
2899 0 kHz	I	MA, FAE	International HF (NAT).
2911 0 kHz	I	MA, FAE	Domestic HF
2932 0 kHz	I	MA, FAE	International HF (NP)
2935.0 kHz	I	MA, FAE	International HF (NP).
2944 0 kHz	I	MA, FAE	International HF (SAM and MID).
2956 0 kHz	I	MA, FAE	Domestic HF
2962.0 kHz	I	MA, FAE	International HF (NAT).
2971 0 kHz	I	MA, FAE	International HF (NAT)

2992 0 kHz	I	MA, FAE	International HF (MID).
2998.0 kHz	I	MA, FAE	International HF (CWP).
3004 0 kHz	I, J	MA, FAE, FAT	International HF (NCA); Flight test.
3013 0 kHz	I	MA, FAE	Long distance operational control
3016 0 kHz	I	MA, FAE	International HF (EA, NAT).
3019 0 kHz	I	MA1, FAE	Domestic HF; International HF (NCA).
3023 0 kHz	F, M, O	MA1, FAR, FAC	Search and rescue communications
3281 0 kHz	K	MA, FAS	Lighter-than-air craft and aeronautical stations serving lighter-than-air craft
3413 0 kHz	I	MA, FAE	International HF (CEP).
3419 0 kHz	I	MA, FAE	International HF (AFI)
3425 0 kHz	I	MA, FAE	International HF (AFI).
3434 0 kHz	I	MA1, FAE	Domestic HF
3443 0 kHz	J	MA, FAT	
3449 0 kHz	I	MA, FAE	Domestic HF
3452 0 kHz	I	MA, FAE	International HF (SAT).
3455 0 kHz	I	MA, FAE	International HF (CAR, CWP).
3467 0 kHz	I	MA, FAE	International HF (AFI, MID, SP).
3470 0 kHz	I	MA, FAE	Domestic HF and International HF (SEA)
3473 0 kHz	I	MA, FAE	International HF (MID).
3476 0 kHz	I	MA, FAE	International HF (INO, NAT)
3479 0 kHz	I	MA, FAE	International HF (EUR, SAM)
3485.0 kHz	I	MA, FAE	International HF (EA, SEA).
3491 0 kHz	I	MA, FAE	International HF (EA)
3494.0 kHz	I	MA, FAE	Long distance operational control.
4125.0 kHz	F	MA	Distress and safety with ships and coast stations
4466 0 kHz			[Reserved]
4469 0 kHz			[Reserved]
4506 0 kHz			[Reserved]
4509.0 kHz			[Reserved]
4550.0 kHz	I	AX	Gulf of Mexico.
4582 0 kHz			[Reserved]
4585.0 kHz			[Reserved]
4601.0 kHz			[Reserved]
4604 0 kHz			[Reserved]
4627 0 kHz			[Reserved]
4630 0 kHz			[Reserved]
4645.0 kHz	I	AX	Alaska.
* * *			
21964 0 kHz	I	MA, FAE	Long distance operational control.
26618.5 kHz			[Reserved]
26620 0 kHz			[Reserved]

26621 5 kHz			[Reserved]
72 020-75 980 MHz	P	FA, AXO	Operational fixed, 20 kHz spacing
75 000 MHz	Q	RLA	Marker beacon.
108 000 MHz	Q	RLT	
108 000-117 950 MHz	Q	RLO	VHF omni-range.
108 000-117 975 MHz	Q	DGP	Differential GPS
108 050 MHz	Q	RLT	
108 100-111 950 MHz	Q	RLL	ILS Localizer.
108 100 MHz	Q	RLT	
108 150 MHz	Q	RLT	
118 000-121 400 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
121 500 MHz	G, H, I, J, K, M, O	MA, FAU, FAE, FAT, FAS, FAC, FAM, FAP	Emergency and distress.
121 600-121 925 MHz	I, O, L, Q	MA, FAC, MOU, RLT, GCO, RCO, RPC	25 kHz channel spacing.
121 950 MHz	K	FAS	
121 975 MHz	F	MA, FAW, FAC. MOU	Air traffic control operations.
122 000 MHz	F	MA, FAC, MOU	Air carrier and private aircraft enroute flight advisory service provided by FAA
122 025 MHz	F	MA, FAC, MOU	Air traffic control operations.
122 050 MHz	F	MA, FAC, MOU	Air traffic control operations.
122 075 MHz	F	MA, FAW, FAC, MOU	Air traffic control operations.
122 100 MHz	F, O	MA, FAC, MOU	Air traffic control operations.
122.125-122.675 MHz	F	MA, FAC, MOU	Air traffic control operations, 25 kHz spacing
122 700 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower, Aeronautical utility stations.
122 725 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations
122 750 MHz	F	MA2	Private fixed wing aircraft air-to-air communications.
122 775 MHz	K	MA, FAS	
122 800 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower, Aeronautical utility stations.
122 825 MHz	I	MA, FAE	Domestic VHF
122 850 MHz	H, K	MA, FAM, FAS	
122 875 MHz	I	MA, FAE	Domestic VHF.

122 900 MHz	F, H, L, M	MA, FAR, FAM, MOU	
122 925 MHz	H	MA2, FAM	
122 950 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122 975 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower, Aeronautical utility stations
123 000 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower, Aeronautical utility stations.
123 025 MHz	F	MA2	Helicopter air-to-air communications; Air traffic control operations.
123 050 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower, Aeronautical utility stations
123 075 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations
123 100 MHz	M, O	MA, FAC, FAR	
123 125 MHz	J	MA, FAT	Itinerant
123 150 MHz	J	MA, FAT	Itinerant
123 175 MHz	J	MA, FAT	Itinerant
123 200 MHz	J	MA, FAT	
123 225 MHz	J	MA, FAT	
123 250 MHz	J	MA, FAT	
123 275 MHz	J	MA, FAT	
123 300 MHz	K	MA, FAS	
123 325 MHz	J	MA, FAT	
123 350 MHz	J	MA, FAT	
123 375 MHz	J	MA, FAT	
123 400 MHz	J	MA, FAT	Itinerant.
123 425 MHz	J	MA, FAT	
123 450 MHz	J	MA, FAT	
123.475 MHz	J	MA, FAT	
123 500 MHz	K	MA, FAS	
123 525 MHz	J	MA, FAT	
123 550 MHz	J	MA, FAT	
123 575 MHz	J	MA, FAT	
* * *			
123 6-128 8 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
128 825-132.000 MHz	I	MA, FAE	Domestic VHF, 25 kHz channel spacing
132 025-135 975 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing
136 000-136 400 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations; 25 kHz channel spacing.
136 425 MHz	O, S	MA, FAC,	Air traffic control operations.

		FAW, GCO, RCO, RPC	
136 450 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136 475 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.500-136 875 MHz	I	MA, FAE	Domestic VHF, 25 kHz channel spacing.
136 900 MHz	I	MA, FAE	International and domestic VHF.
136 925 MHz	I	MA, FAE	International and domestic VHF
136 950 MHz	I	MA, FAE	International and domestic VHF.
136.975 MHz	I	MA, FAE	International and domestic VHF.
143 750 MHz			[Reserved]
143.900 MHz			[Reserved]
148 150 MHz			[Reserved]
156 300 MHz	F	MA	For communications with ship stations under specific conditions
* * *			
960-1215 MHz	F, Q	MA, RL, RNV	Electronic aids to air navigation.
978 000 MHz	Q	RLT	
979.000 MHz	Q	RLT	
1030 000 MHz	Q	RLT	
1104 000 MHz	Q	RLT	
1300-1350 MHz	F, Q	MA, RLS	Surveillance radars and transponders.
1435-1535 MHz	F, J	MA, FAT	Aeronautical telemetry and telecommand operations.
1559-1610 MHz	Q	DGP	Differential GPS.
1559-1626 5 MHz	F, Q	MA, RL	Aeronautical radionavigation.
1646.5-1660.5 MHz	F	TJ	Aeronautical Mobile-Satellite (R).
2310-2390 MHz	J	MA, FAT	Aeronautical telemetry and telecommand operations.
2700-2900 MHz	Q	RLS, RLD	Airport surveillance and weather radar.
4200-4400 MHz	F	MA	Radio altimeters.
5000-5250 MHz	Q	MA, RLW	Microwave landing systems.
5031 000 MHz	Q	RLT	
5350-5470 MHz	F	MA	Airborne radars and associated airborne beacons.
8750-8850 MHz	F	MA	Airborne doppler radar.
9000-9200 MHz	Q	RLS, RLD	Land-based radar.
9300-9500 MHz	F, Q	MA	Airborne radars and associated airborne beacons.
13250-13400 MHz	F	MA	Airborne doppler radar.
14000-14400 MHz	F, Q	MA, RL	Aeronautical radionavigation.
15400-15700 MHz	Q	RL	Aeronautical radionavigation.
24750-25050 MHz	F, Q	MA, RL	Aeronautical radionavigation.
32300-33400 MHz	F, Q	MA, RL	Aeronautical radionavigation.

18 Section 87 187 is amended by revising paragraph (q) and adding a new paragraph (ee) to read as follows

§ 87.187 Frequencies.

* * * * *

(q)(1) The frequencies in the bands 1545 000-1559 000 MHz, 1610.000-1626 500 MHz, 1646.500-1660.500 MHz, and 5000.000-5150 000 MHz are authorized for use by the Aeronautical Mobile-Satellite (R) Service. The use of the bands 1544 000-1545 000 MHz (space-to-Earth) and 1645.500-1646 500 MHz (Earth-to-space) by the Mobile-Satellite Service is limited to distress and safety operations In the frequency bands 1549.500-1558 500 MHz, 1610 000-1626 500 MHz 1651 000-1660 000 MHz, and 5000.000-5150 000 MHz, the Aeronautical Mobile-Satellite (R) requirements that cannot be accommodated in the 1545.000-1549 5000 MHz, 1558.500-1559.000 MHz, 1646.500-1651 000 MHz, and 1660.000-1660 500 MHz bands shall have priority access with real-time preemptive capability for communications in the Mobile-Satellite Service Systems not interoperable with the Aeronautical Mobile-Satellite (R) Service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the Mobile-Satellite Service

(2) In the frequency bands 1549.5-1558 5 MHz, 1610-1626 5 MHz, 1651-1660 MHz and 5000-5150 MHz, the Aeronautical-Mobile-Satellite (Route) Service requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile satellite service. Systems not interoperable with the Aeronautical Mobile-Satellite (Route) Service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the mobile-satellite service

* * * * *

(ee) The frequency 121 95 MHz is authorized for air-to-ground and air-to-air communications for aircraft up to 13000 feet above mean sea level (AMSL) within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

32-35-00 N Lat ; 117-12-00 W Long

32-42-00 N Lat ; 116-56-00 W Long

32-41-00 N Lat , 116-41-00 W Long

32-35-00 N. Lat., 116-38-00 W Long

32-31-00 N Lat , 117-11-00 W Long

19 Section 87.189 is amended by revising paragraph (c) to read as follows.

§ 87.189 Requirements for public correspondence equipment and operations.

* * * * *

(c) A continuous watch must be maintained on the frequencies used for safety and regularity of flight while public correspondence communications are being handled For aircraft earth stations, this requirement is satisfied by compliance with the priority and preemptive access requirements of § 87 187(q)

* * * * *

20 Section 87 215 is amended by redesignating paragraphs (c) and (d) as paragraphs (f) and (g), respectively, and by adding new paragraphs (c), (d), and (e) to read as follows:

§ 87.215 Supplemental Eligibility.

* * * * *

(c) At an airport where only one unicom may be licensed, eligibility for new unicom licenses is restricted to State or local government entities, and to nongovernmental organizations (NGOs) that are authorized to apply for the license by a State or local government entity whose primary mission is the provision of public safety services All applications submitted by NGOs must be accompanied by a new, written certification of support (for the NGO applicant to operate the applied for station) by the state or local government entity Applications for a unicom license at the same airport, where only one unicom may be licensed, that are filed by two or more applicants meeting these eligibility criteria must be resolved through settlement or technical amendment.

(d) At an airport where only one unicom may be licensed, the license may be assigned or transferred only to an entity meeting the requirements of paragraph (c) of this section.

(e) An applicant for renewal of a unicom license shall be granted a presumptive renewal expectancy regardless of whether the applicant is eligible for a new unicom license under paragraph (c) of this section. Unless the renewal expectancy is defeated, applications that are mutually exclusive with the renewal application will not be accepted. The renewal expectancy may be defeated only upon a determination, following a hearing duly designated on the basis of a petition to deny or on the Commission's own motion, that the renewal applicant has not provided substantial service For purposes of this paragraph, substantial service means service which is sound, favorable, and substantially above a level of mediocre service during the applicant's past license term If the renewal expectancy is defeated, the renewal application will be dismissed unless the renewal applicant is eligible for a new unicom license pursuant to paragraph (c) of this section

* * * * *

21 Section 87 217 is amended by revising paragraph (a) to read as follows:

§ 87.217 Frequencies.

(a) Only one unicom frequency will be assigned at any one airport. Applicants must request a particular frequency, which will be taken into consideration when the assignment is made. The frequencies assignable to unicoms are:

* * * * *

22 Section 87 421 is amended by revising paragraph (c) to read as follows.

§ 87.421 Frequencies.

* * * * *

(c) Frequencies in the band 121 600-121.925 MHz are available to control towers and RCOs for general air traffic control communications. The antenna heights shall be restricted to the minimum necessary to achieve the required coverage Channel spacing is 25 kHz

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16 Section 87 475 is amended by revising paragraphs (b)(2) and (c)(2) to read as follows:

§ 87.475 Frequencies.

* * * * *

(b) * * * * *

(2) Radiobeacon stations enable an aircraft station to determine bearing or direction in relation to the radiobeacon station Radiobeacons operate in the bands 190-285 kHz, 325-435 kHz; 510-525 kHz; and 525-535 kHz Radiobeacons may be authorized, primarily for off-shore use, in the band 525-535 kHz on a non-interference basis to travelers information stations.

* * * * *

(c) * * * * *

(2) The frequencies available for assignment to radionavigation land test stations for the testing of airborne receiving equipment are 108.000 and 108 050 MHz for VHF omni-range; 108 100 and 108.150 MHz for localizer, 334.550 and 334 700 MHz for glide slope; 978 and 979 MHz (X channel)/1104 MHz (Y channel) for DME, 1030 MHz for air traffic control radar beacon transponders; 1090 MHz for Traffic Alert and Collision Avoidance Systems (TCAS), and 5031.0 MHz for microwave landing systems Additionally, the frequencies in paragraph (b) of this section may be assigned to radionavigation land test stations after coordination with the FAA. The following conditions apply:

* * * * *

17 Subpart R is reserved

Subpart R – [Reserved]

18 Section 87.529 is amended to read as follows

§ 87.529 Frequencies.

Prior to submitting an application, each applicant must notify the applicable FAA Regional Frequency Management Office Each application must be accompanied by a statement showing the name of the FAA Regional Office and date notified. The Commission will assign the frequency. Normally, frequencies available for air traffic control operations set forth in Subpart E will be assigned to an AWOS, ASOS, or to an ATIS When a licensee has entered into an agreement with the FAA to operate the same station as both an AWOS and as an ATIS, or as an ASOS and an ATIS, the same frequency will be used in both modes of operation.

PART 95—PERSONAL RADIO SERVICES

19 The authority citation for Part 95 continues to read as follows.

AUTHORITY: Sections 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303.

20 Section 95 655 is amended by revising paragraph (a) to read as follows:

§ 95.655 Frequency Capability

(a) No transmitter will be certificated for use in the CB service if it is equipped with a frequency capability not listed in § 95 625, and no transmitter will be certificated for use in the GMRS if it is equipped with a frequency capability not listed in § 95 621, unless such transmitter is also certificated for use in another radio service for which the frequency is authorized and for which certification is also required (Transmitters with frequency capability for the Amateur Radio Services and Military Affiliate Radio System will not be certificated.)

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